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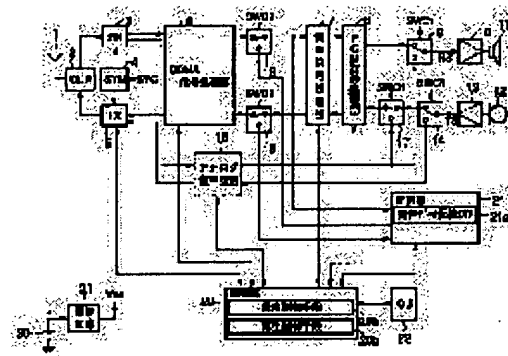
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(54) DUAL MODE RADIO COMMUNICATION EQUIPMENT HAVING FUNCTION OF USING SELECTIVELY ANALOG MODE OR DIGITAL MODE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a dual mode radio communication equipment with which voice data of a same amount are compressed and stored in both the communication modes.

SOLUTION: A recording control means 20a stores voice data outputted from a code division multiple access (CDMA) signal processing section 6 to a voice data storage area 21a via a changeover circuit 216 when user's recording request is received in the digital mode. In the case of analog mode, analog signals outputted from an analog voice 15 are given to a PCM code processing section 8 via changeover circuit 17 and converted into digital signal. Then a voice code processing section 7 conducts compression processing and the result is recorded in the voice data storage area 21a via a changeover circuit 18. A reproduction control means 20b reads voice data from the voice data storage area 21a, in response to a reproduction request of the user independently of the communication mode and the data are given to the voice code processing section 7 via the changeover circuit 16, and the stored voice data are reproduced.



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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The circuit block diagram showing the composition of 1 operation gestalt of the dual mode radio communication equipment concerning this invention.

[Drawing 2] The circuit block diagram showing the composition of the conventional dual mode radio communication equipment.

[Description of Notations]

- 1 -- Antenna
- 2 -- Antenna common machine (DUP)
- 3 -- Receiving circuit (RX)
- 4 -- Frequency synthesizer (SYN)
- 5 -- Sending circuit (TX)
- 6 -- CDMA signal-processing section
- 7 -- Voice sign processing section
- 8 -- PCM sign processing section
- 9, 14, 16, 17, 18 -- Electronic switch
- 10 13 -- Amplifier
- 11 -- Loudspeaker
- 12 -- Microphone
- 15 -- Analog voice circuit
- 20 -- Control section
- 20a -- Recording control means
- 20b -- Reproduction control means
- 21 -- Storage section
- 21a -- Voice data storage area
- 22 -- Console unit (CU)
- 30 -- Battery
- 31 -- Power circuit

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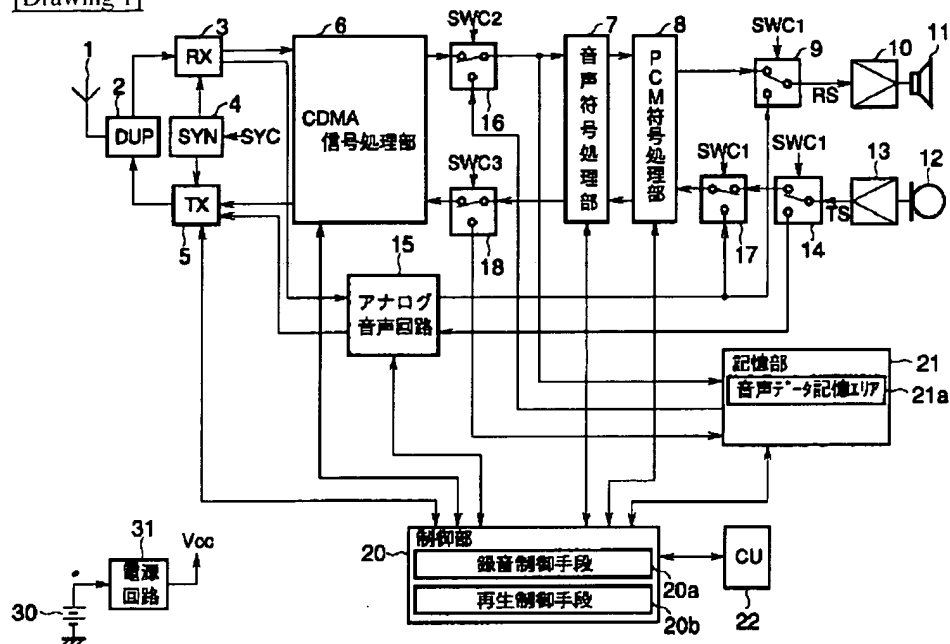
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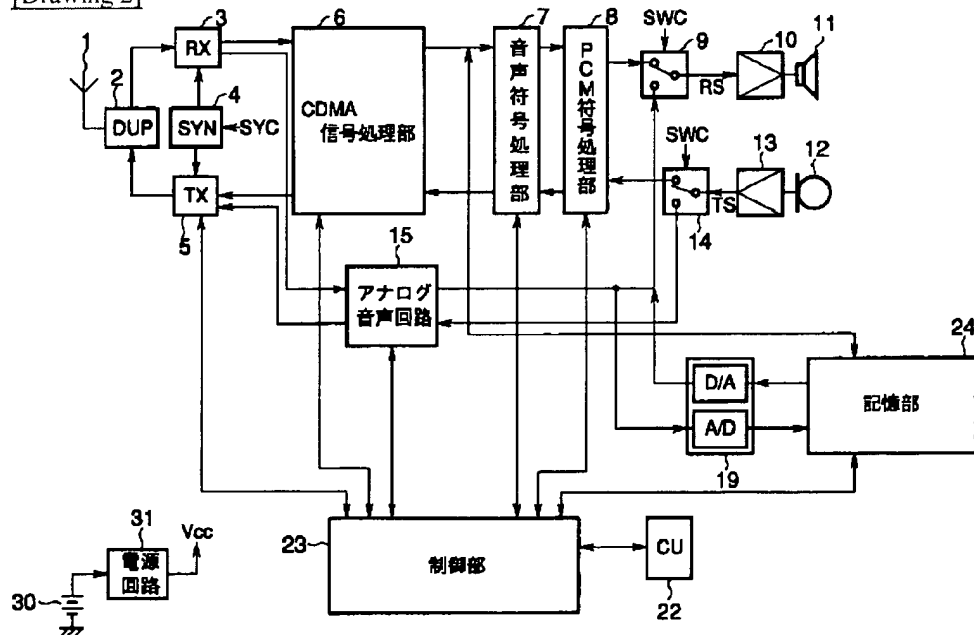
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DRAWINGS

[Drawing 1]



[Drawing 2]



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the recording regenerative function of the dual mode radio communication equipment which uses analog mode and digital mode alternatively as the communicate mode between base stations like car telephone equipment and cellular-phone equipment.

[0002]

[Description of the Prior Art] Drawing 2 shows the composition of the conventional dual mode radio communication equipment, and has two communication modes, analog mode and the digital mode of a CDMA (Code Division Multiple Access) method.

[0003] This conventional dual mode radio communication equipment has changed to the PCM sign processing section 8 side in the state where digital mode was set up, according to the change control signal SWC with which electronic switches 9 and 14 are outputted from a control section 23.

[0004] The radio-frequency signal (a received radio-frequency signal is called hereafter) sent through the digital message channel in this state from the base station which is not illustrated is inputted into a receiving circuit (RX) 3 through the antenna common machine (DUP) 2, after being received by the antenna 1.

[0005] In a receiving circuit 3, the above-mentioned received radio-frequency signal is mixed with the receiving station section oscillation signal outputted from the frequency synthesizer (SYN) 4, and frequency conversion is carried out to an intermediate frequency signal. In addition, the frequency of the receiving station section oscillation signal generated from the above-mentioned frequency synthesizer 4 is directed by the control signal SYC outputted from a control section 23.

[0006] After rectangular recovery processing is performed in the CDMA signal-processing section 6, back-diffusion-of-gas processing is performed using a PN code, and, as for the above-mentioned received intermediate frequency signal, the received data of self-**** are extracted. Extension processing is performed in the voice sign processing section 7, and these extracted received data are changed into a digital receiver signal.

[0007] And the decode of the above-mentioned digital receiver signal is carried out to an analog receiver signal in the PCM sign processing section 8. After this analog receiver signal minds an electronic switch 9, it is amplified with amplifier 10, and a **** output is carried out from a loudspeaker 11.

[0008] On the other hand, after a speaker's transmission signal inputted into the microphone 12 is amplified with amplifier 13, it is inputted into the PCM sign processing section 8 through an electronic switch 14. After PCM coding processing is performed and the analog receiver signal inputted into the PCM sign processing section 8 is changed into a digital transmission signal, compression processing is performed in the voice sign processing section 7, and it is inputted into the CDMA signal-processing section 6 as transmit data.

[0009] Quadrature modulation processing is performed and the transmit data inputted into the CDMA signal-processing section 6 is inputted into a sending circuit (TX) 5, after diffusion process is given using the PN code according to the transmitting channel.

[0010] In a sending circuit 5, the above-mentioned quadrature modulation signal is compounded with a sending-station section oscillation signal, and is changed into a radio-frequency signal, and RF amplification is further carried out. In addition, the above-mentioned sending-station section oscillation signal is outputted from a frequency synthesizer 4 according to directions of a control section 23.

[0011] The transmitted radio-frequency signal outputted from the above-mentioned sending circuit 5 is supplied to an antenna 1 through the antenna common machine 2, and is transmitted towards the base station which is not illustrated from this antenna 1.

[0012] Next, in the state where analog mode was set up, it has changed to the analog voice circuit 15 side with the change control signal SWC by which electronic switches 9 and 14 are outputted from a control section 23.

[0013] The radio-frequency signal sent through the analog message channel in this state from the base station which is not illustrated is inputted into a receiving circuit 3 through the antenna common machine 2, after being received by the antenna 1, and frequency conversion is carried out to an intermediate frequency signal by this receiving circuit 3. The received intermediate frequency signal outputted from this receiving circuit 3 is inputted into the analog voice circuit 15.

[0014] In this analog voice circuit 15, the above-mentioned received intermediate frequency signal is reproduced by FM recovery as an analog receiver signal. After this analog receiver signal is amplified with amplifier 10 through an electronic switch 9, the **** output of it is carried out from a loudspeaker 11.

[0015] On the other hand, after a speaker's transmission signal outputted from the microphone 12 is amplified with amplifier 13, it is inputted into the analog voice circuit 15 through an electronic switch 14. In the analog voice circuit 15, the modulating signal by which FM modulation was carried out according to the above-mentioned transmission signal is generated, and this modulating signal is inputted into a sending circuit 5.

[0016] In a sending circuit 5, it is mixed with the sending-station section oscillation signal according to the radio frequency of the analog message channel generated from the frequency synthesizer 4, a rise conversion is carried out at a radio-frequency signal, and RF amplification of the above-mentioned modulating signal is carried out at a further predetermined output level.

[0017] And the radio-frequency signal outputted from this sending circuit 5 is supplied to an antenna 1 through the antenna common machine 2, and is transmitted towards the base station which is not illustrated from this antenna 1.

[0018] A control section 23 is what made the microcomputer the main-control section, and performs control which carries out [which carries out, and is recorded / reproduced] a telephone call partner's voice other than the usual control for establishing the base station and communication link which do not generalize, control and illustrate each part, and performing communication of voice or data.

[0019] The storage section 24 is what used semiconductor memory, such as ROM and RAM, as the storage, and equips this storage with the dial data made to correspond to the control program of a control section 23, control data transmission-and-reception talk various besides ID data of a self-opportunity required for authentication, various setting data, abbreviated dialing, etc., and the area which memorizes a telephone call partner's voice data.

[0020] The LCD drop for displaying the telephone number of a telephone call partner terminal, the operating state of equipment, etc. on the console unit (CU) 22 as key groups, such as a dialing key, a dispatch key, an end key, a volume control key, and a mode specification key, and Discharge of a battery 30 The Light Emitting Diode lamp in which a state is shown (charge of a battery 30 is required) is formed.

[0021] 31 is a power circuit, and by this power circuit 31, the predetermined supply voltage Vcc of operation is generated based on the output of a battery 30, and it is supplied to each circuit. By the way, in the state where digital mode was set up, it carries out that a user operates the key of the console unit 22 etc., and if the demand which records a telephone call partner's voice is made, the received data (voice data) of self-**** outputted to the voice sign processing section 7 from the CDMA signal-processing section 6 will be recorded on the storage section 24 by control of a control section 23.

[0022] Moreover, when reproducing the voice data which carried out in this way and was recorded on the storage section 24 at the time of digital mode, the above-mentioned voice data is read from the storage section 24, and is inputted into the voice sign processing section 7, and a **** output is carried out by control of a control section 23 like [loudspeaker / 11] the time of the usual telephone call.

[0023] On the other hand, if the demand to which a user records telephone call voice like the above in the state where analog mode was set up is performed, after a telephone call partner's analog sound signal outputted from the analog voice circuit 15 is changed into a digital signal by LS119 for recording reproduction, it will be recorded on the storage section 24 by control of a control section 23.

[0024] Moreover, a **** output is carried out like [loudspeaker / 11] the time of the usual telephone call after the above-mentioned voice data was read by control of a control section 23 from the storage section 24 when reproducing the voice data which carried out in this way and was recorded on the storage section 24 at the time of analog mode, and being inputted into LS119 for recording reproduction and changed into the analog signal.

[0025] As mentioned above, in the conventional dual mode radio communication equipment, the form of a telephone call partner's voice data that the communicate mode is recorded on the storage section 24 by digital mode or analog mode differs.

[0026] That is, the sound signal once changed into the analog signal is changed into a digital signal, and it is made to record it by LS119 for recording reproduction again to the digital voice data in the state where it was compressed being recorded on the storage section 24 at the time of analog mode at the time of digital mode.

[0027] Therefore, since compressibility is different with digital mode or analog mode, even if a telephone call partner's voice data recorded on the storage section 24 is the same content, the amounts of fields which use the storage section 24 differ.

[0028] For this reason, in the conventional dual mode radio communication equipment, the time which can be recorded changed with digital mode or analog modes, and the derangement on employment was invited to the user.

[0029] Moreover, when having not depended the time which can be recorded on the communicate mode but it was the same, the time in which the recording is possible will be dependent on the case at the time of the low analog mode of a data compression rate, and was reducing the use efficiency of the storage section 24 at the time of digital mode.

[0030] [Problem(s) to be Solved by the Invention] In the conventional dual mode radio communication equipment, there is a problem of the time which can be recorded changing with digital mode or analog modes, and inviting the derangement on employment to a user by difference of the compressibility of voice data. On the other hand, in having not depended the time which can be recorded on the communicate mode but being the same, the time in which the recording is possible will be dependent on the case at the time of the low analog mode of a data compression rate, and the problem of a low in the use efficiency of the storage section at the time of digital mode arises.

[0031] This invention was not made that the above-mentioned problem should be solved, and is not based on the communicate mode, but it aims at offering the dual mode radio communication equipment which can compress and accumulate the same quantity of voice data.

[0032] [Means for Solving the Problem] In order to attain the above-mentioned purpose, the dual mode radio communication equipment concerning this invention In the dual mode radio communication equipment which communicates among analog mode and digital mode between base stations connectable with a public network, using one communicate mode alternatively A digital data extraction means to extract the digital voice data sent to the self-opportunity from an input signal, Predetermined processing is performed to the digital voice data extracted with this digital data extraction means. A digital-signal-processing means to change into an analog sound signal, and an analog signal processing means to reproduce the analog sound signal sent to the self-opportunity from an input signal, When there are a voice data accumulation means to accumulate the above-mentioned digital voice data, and an accumulation demand of the sound signal which received and the communicate mode is digital mode Record the digital voice data extracted by the digital

data extraction means on a voice data accumulation means, and on the other hand, when the communicate mode is analog mode The voice data record control means which change the analog sound signal reproduced by the analog signal processing means into the data of the same form as the digital voice data from which it is extracted by the digital data extraction means, and record it on a voice data accumulation means are provided, and it was made to constitute.

[0033] When accumulating the voice sent by the telephone call partner, the digital voice data sent by the telephone call partner is accumulated for a voice data accumulation means, and the analog sound signal which received at the time of analog mode is changed into the data of the same form as digital voice data, and it is made to record it on a voice data accumulation means on the other hand in the dual mode radio communication equipment of the above-mentioned composition at the time of digital mode.

[0034] Therefore, according to the dual mode radio communication equipment of the above-mentioned composition, since voice data is accumulated as data of the same form as the time of digital mode at the time of analog mode, the same quantity of voice data can be accumulated in both the communicate modes.

[0035] Moreover, in this invention, when there is a reproduction demand of the sound signal accumulated for the voice data accumulation means in addition to above-mentioned composition, digital voice data is read from a voice data accumulation means, and it inputs into a digital-signal-processing means, and is characterized by having the voice data reproduction control means which change digital voice data into an analog sound signal.

[0036] Therefore, according to this dual mode radio communication equipment, in both the communicate modes, the voice data accumulated for the voice data accumulation means by common control is reproducible.

[0037] Furthermore, the digital voice data extracted by the digital data extraction means in this invention is digital data of form that predetermined compression processing was performed, and voice data record control means perform compression processing, and change into the form of digital voice data the analog sound signal reproduced by the analog signal processing means when the communicate mode is analog mode, and it is characterized by what is recorded on a voice data accumulation means.

[0038] When accumulating the voice sent by the telephone call partner, it accumulates for a voice data accumulation means still in the state in the state where the digital voice data sent by the telephone call partner was compressed at the time of digital mode, and the analog sound signal which received at the time of analog mode is changed into the data of the compressed same form as digital voice data, and it is made record it on a voice data accumulation means on the other hand in the dual mode radio communication equipment of the above-mentioned composition.

[0039] Therefore, according to the dual mode radio communication equipment of the above-mentioned composition, since voice data is accumulated as data of the compressed same form as the time of digital mode at the time of analog mode, the same quantity of voice data can be compressed and accumulated in both the communicate modes.

[0040]

[Embodiments of the Invention] Hereafter, 1 operation gestalt of this invention is explained with reference to a drawing. Drawing 1 shows the composition of the dual mode radio communication equipment concerning 1 operation gestalt of this invention.

[0041] First, if the state where digital mode was set up is explained, the radio-frequency signal (a received radio-frequency signal is called hereafter) sent through the digital message channel from the base station which is not illustrated will be inputted into a receiving circuit (RX) 3 through the antenna common machine (DUP) 2, after being received by the antenna 1.

[0042] In a receiving circuit 3, the above-mentioned received radio-frequency signal is mixed with the receiving station section oscillation signal outputted from the frequency synthesizer (SYN) 4, and frequency conversion is carried out to an intermediate frequency signal. In addition, the frequency of the receiving station section oscillation signal generated from the above-mentioned frequency synthesizer 4 is directed by the control signal SYC outputted from a control section 20.

[0043] After rectangular recovery processing is performed in the CDMA signal-processing section 6, back-diffusion-of-gas processing is performed using a PN code, and, as for the above-mentioned received intermediate frequency signal, the received data of self-**** are extracted. These extracted received data are inputted into the 1st input terminal of an electronic switch 16.

[0044] An electronic switch 16 inputs into the voice sign processing section 7 and the below-mentioned storage section 21 the received data inputted into the 1st input terminal from the CDMA signal-processing section 6, when it is changed and controlled by the change control signal SWC2 outputted from a control section 20 and accumulates the time of the usual telephone call, and voice data.

[0045] Moreover, in reproducing the voice data accumulated in the below-mentioned storage section 21, it is not based on the communicate mode but inputs into the voice sign processing section 7 the voice data read from the storage section 21 inputted into the 2nd input terminal.

[0046] After being inputted into the voice sign processing section 7, performing extension processing here and changing the voice data through the electronic switch 16 into a digital receiver signal, it is inputted into the PCM sign processing section 8, and decode is carried out to an analog receiver signal.

[0047] The above-mentioned analog receiver signal is inputted into the 1st input terminal, and, on the other hand, as for an electronic switch 9, the analog receiver signal from the below-mentioned analog voice circuit 15 is inputted into the 2nd input terminal.

[0048] And with the change control signal SWC1 outputted from a control section 20, an electronic switch 9 is changed and controlled, carries out the selection output of the analog receiver signal from the PCM sign processing section 8 at amplifier 10 at the time of reproduction of the voice data accumulated at the digital mode time, and, on the other hand, carries out the selection output of the analog receiver signal from the analog voice circuit 15 at amplifier 10 at the time of analog mode. The analog receiver signal outputted from an electronic switch 9 is amplified with amplifier 10, and a **** output is carried out from a loudspeaker 11.

[0049] On the other hand, after a speaker's transmission signal inputted into the microphone 12 is amplified with amplifier 13, it is inputted into the input terminal of an electronic switch 14. An electronic switch 14 is changed and controlled by the change control signal SWC1 outputted from a control section 20, carries out the selection output of the transmission signal amplified with the above-mentioned amplifier 13 at the time of digital mode at the 1st input terminal of an electronic switch 17, and, on the other hand, carries out the selection output of the above-mentioned transmission signal in the analog voice circuit 15 at the time of analog mode.

- [0050] As for an electronic switch 17, the analog receiver signal by which the transmission signal amplified by the 1st input terminal with amplifier 13 is inputted, and is outputted as mentioned above to the 2nd input terminal from the analog voice circuit 15 on the other hand is inputted.
- [0051] And an electronic switch 17 is changed and controlled by the change control signal SWC1 outputted from a control section 20, carries out the selection output of the transmission signal amplified with amplifier 13 at the time of digital mode at the PCM sign processing section 8, and, on the other hand, carries out the selection output of the analog receiver signal from the analog voice circuit 15 in the PCM sign processing section 8 at the time of analog mode.

[0052] After PCM coding processing is performed and the analog receiver signal inputted into the PCM sign processing section 8 is changed into a digital transmission signal, compression processing is performed in the voice sign processing section 7, and it is inputted into the input terminal of an electronic switch 18 as transmit data.

[0053] An electronic switch 18 is changed and controlled by the change control signal SWC3 outputted from a control section 20, carries out the selection output of the transmit data from the above-mentioned voice sign processing section 7 in the CDMA signal-processing section 6 at the time of digital mode, and on the other hand, when accumulating the voice data at the time of analog mode, it carries out the selection output of the above-mentioned transmit data at the storage section 21.

[0054] Quadrature modulation processing is performed and the transmit data inputted into the CDMA signal-processing section 6 is inputted into a sending circuit (TX) 5, after diffusion process is given using the PN code according to the transmitting channel.

[0055] In a sending circuit 5, the above-mentioned quadrature modulation signal is compounded with a sending-station section oscillation signal, and is changed into a radio-frequency signal, and RF amplification is further carried out. In addition, the above-mentioned sending-station section oscillation signal is outputted from a frequency synthesizer 4 according to directions of a control section 20.

[0056] The transmitted radio-frequency signal outputted from the above-mentioned sending circuit 5 is supplied to an antenna 1 through the antenna common machine 2, and is transmitted towards the base station which is not illustrated from this antenna 1.

[0057] Next, if the state where analog mode was set up is explained, the radio-frequency signal sent through the analog message channel from the base station which is not illustrated will be inputted into a receiving circuit 3 through the antenna common machine 2, after being received by the antenna 1, and frequency conversion will be carried out to an intermediate frequency signal by this receiving circuit 3. The received intermediate frequency signal outputted from this receiving circuit 3 is inputted into the analog voice circuit 15.

[0058] In this analog voice circuit 15, the above-mentioned received intermediate frequency signal is reproduced by FM recovery as an analog receiver signal. After being amplified with amplifier 10 through an electronic switch 9, while a **** output is carried out from a loudspeaker 11, the selection output of this analog receiver signal is carried out through an electronic switch 17 at the PCM sign processing section 8.

[0059] On the other hand, after a speaker's transmission signal outputted from the microphone 12 is amplified with amplifier 13, it is inputted into the analog voice circuit 15 through an electronic switch 14. In the analog voice circuit 15, the modulating signal by which FM modulation was carried out according to the above-mentioned transmission signal is generated, and this modulating signal is inputted into a sending circuit 5.

[0060] In a sending circuit 5, it is mixed with the sending-station section oscillation signal according to the radio frequency of the analog message channel generated from the frequency synthesizer 4, a rise conversion is carried out at a radio-frequency signal, and RF amplification of the above-mentioned modulating signal is carried out at a further predetermined output level.

[0061] And the radio-frequency signal outputted from this sending circuit 5 is supplied to an antenna 1 through the antenna common machine 2, and is transmitted towards the base station which is not illustrated from this antenna 1.

[0062] By the way, a control section 20 is what made the microcomputer the main-control section, and is newly equipped with recording control-means 20a and reproduction control-means 20b as control means for recording/reproducing and carrying out a telephone call partner's voice other than the usual control for establishing the base station and communication link which do not generalize, control and illustrate each part, and performing communication of voice or data.

[0063] When a user operates the below-mentioned console unit (CU) 22 and performs a recording demand, recording control-means 20a changes and controls electronic switches 9, 14, 16, 17, and 18 through the above-mentioned change control signals 1-SWC 3, and performs control which records a telephone call partner's voice data on the storage section 21.

[0064] As the control, when there is a recording demand at the time of digital mode, the voice data (received data) from a telephone call partner which the CDMA signal-processing section 6 outputs is recorded on the below-mentioned voice data storage area 21a through an electronic switch 16.

[0065] Moreover, when there is a recording demand at the time of analog mode, the analog receiver signal which the analog voice circuit 15 outputs is inputted into the PCM sign processing section 8 through an electronic switch 17, and is changed into a digital signal, and compression processing is performed in the voice sign processing section 7, and it records on voice data storage area 21a through an electronic switch 18.

[0066] When a user operates the console unit 22 and performs a reproduction demand, reproduction control-means 20b changes and controls electronic switches 9, 14, 16, 17, and 18 through the above-mentioned change control signals 1-SWC 3, and performs control which reads a telephone call partner's voice data from the storage section 21, and is reproduced.

[0067] It changes into an analog sound signal in the PCM sign processing section 8 after reading the voice data recorded on voice data storage area 21a when it was not based on the communicate mode as the control but there was a reproduction demand, inputting into the voice sign processing section 7 through an electronic switch 16 and performing extension processing to the above-mentioned voice data, and a **** output is carried out from a loudspeaker 11 through an electronic switch 9 and amplifier 10.

[0068] The storage section 21 is what used semiconductor memory, such as ROM and RAM, as the storage, and is equipped with voice data storage area 21a as area which this storage is equipped with the area which memorizes the dial data made to correspond to the

- control program of a control section 20, control data transmission-and-reception talk various besides ID data of a self-opportunity required for authentication, various setting data, abbreviated dialing, etc., and also memorizes a telephone call partner's voice data.
- [0069] The LCD drop for displaying the telephone number of a telephone call partner terminal, the operating state of equipment, etc. on the console unit 22 as key groups, such as a dialing key, a dispatch key, an end key, a volume control key, and a mode specification key, and Discharge of a battery 30 The Light Emitting Diode lamp in which a state is shown (charge of a battery 30 is required) is formed.

[0070] 31 is a power circuit, and by this power circuit 31, the predetermined supply voltage Vcc of operation is generated based on the output of a battery 30, and it is supplied to each circuit. Next, operation which records a telephone call partner's voice in the dual mode radio communication equipment of the above-mentioned composition is explained.

[0071] First, when the communicate mode is digital mode, a user operates the key of the console unit 22, and if the demand which records a telephone call partner's voice is made, recording control-means 20a will carry out change control of the electronic switch 16, will input into the storage section 21 the voice data from a telephone call partner which the CDMA signal-processing section 6 outputs, and will record it on voice data storage area 21a.

[0072] When the communicate mode is analog mode and there is a demand which records a telephone call partner's voice from a user, on the other hand, recording control-means 20a Carry out change control of the electronic switches 17 and 18, and input into the PCM sign processing section 8 the analog receiver signal which the analog voice circuit 15 outputs, and it is changed into a digital signal. And compression processing is performed in the voice sign processing section 7, and it inputs into the storage section 21 through an electronic switch 18, and records on voice data storage area 21a.

[0073] If a user operates the key of the console unit 22 and performs a reproduction demand first as operation which reproduces the voice data recorded on voice data storage area 21a as mentioned above on the other hand, reproduction control-means 20b will read voice data from voice data storage area 21a.

[0074] Then, the above-mentioned voice data which changed, controlled and read electronic switches 9 and 16 is inputted into the voice sign processing section 7 through an electronic switch 16, and extension processing is performed to the above-mentioned voice data.

[0075] And it changes into an analog sound signal in the PCM sign processing section 8, and a **** output is carried out from a loudspeaker 11 through an electronic switch 9 and amplifier 10. In addition, as for such reproduction operation of voice data, common control is made in both the communicate modes.

[0076] As mentioned above, at the dual mode radio communication equipment of the above-mentioned composition, when accumulating the voice sent by the telephone call partner, before elongating, where the voice data sent by the telephone call partner is compressed at the time of digital mode, it memorizes in the storage section 21.

[0077] Moreover, after changing into a digital signal the analog sound signal obtained from the telephone call partner at the time of analog mode, the same compression processing as the time of transmission in digital mode is performed, and it memorizes in the storage section 21. That is, it is made to accumulate the voice sent by the telephone call partner like the time of digital mode at the time of analog mode by compressed digital data.

[0078] Therefore, according to the dual mode radio communication equipment of the above-mentioned composition, it cannot be based on the communicate mode, but the same quantity of voice data can be compressed and accumulated. Moreover, since the form of the voice data accumulated when reproducing the above-mentioned voice data is common to both the communicate modes, voice data is reproducible by common control with both the communicate modes.

[0079] In addition, even if this invention gives deformation various in the range which is not limited to the gestalt of the above-mentioned implementation and does not deviate from the summary of this invention, it cannot be overemphasized by it that it can carry out similarly.

[0080]

[Effect of the Invention] When accumulating the voice which was described above and which was sent by the telephone call partner, it accumulates for a voice-data accumulation means still in the state in the state where of the digital voice data sent by the telephone call partner was compressed at the time of digital mode, and the analog sound signal which received at the time of analog mode is changed into the data of the compressed same form as digital voice data, and it is made record it on a voice-data accumulation means on the other hand by this invention like.

[0081] Therefore, according to this invention, since voice data is accumulated as data of the compressed same form as the time of digital mode at the time of analog mode, the dual mode radio communication equipment which can compress and accumulate the same quantity of voice data in both the communicate modes can be offered.

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CLAIMS

[Claim(s)]

[Claim 1] The dual mode radio communication equipment which is characterized by providing the following and which communicates among analog mode and digital mode between base stations connectable with a public network, using one communicate mode alternatively A digital data extraction means to extract the digital voice data sent to the self-opportunity from an input signal A digital-signal-processing means to perform predetermined processing to the digital voice data extracted with this digital data extraction means, and to change into an analog sound signal An analog signal processing means to reproduce the analog sound signal sent to the self-opportunity from an input signal When there are a voice data accumulation means to accumulate the aforementioned digital voice data, and an accumulation demand of the sound signal which received and the communicate mode is digital mode Record the digital voice data extracted by the aforementioned digital data extraction means on the aforementioned voice data accumulation means, and on the other hand, when the communicate mode is analog mode Voice data record control means which change the analog sound signal reproduced by the aforementioned analog signal processing means into the data of the same form as the digital voice data from which it is extracted by the aforementioned digital data extraction means, and record it on the aforementioned voice data accumulation means

[Claim 2] The dual mode radio communication equipment according to claim 1 characterized by having the voice data reproduction control means which read the aforementioned digital voice data from the aforementioned voice data accumulation means, input into the aforementioned digital-signal-processing means, and change the aforementioned digital voice data into an analog sound signal when there is a reproduction demand of the sound signal accumulated for the aforementioned voice data accumulation means.

[Claim 3] It is the dual mode radio communication equipment according to claim 1 or 2 the digital voice data extracted by the aforementioned digital data extraction means is digital data of form that predetermined compression processing was performed, and carry out that perform the aforementioned compression processing, change to the same form as the aforementioned digital voice data, and the aforementioned voice-data record control means record the analog sound signal reproduced by the aforementioned analog signal processing means when the communicate mode is analog mode to the aforementioned voice-data accumulation means as the feature.

[Claim 4] The aforementioned digital-signal-processing means is a dual mode radio communication equipment according to claim 3 characterized by performing extension processing and changing into an analog sound signal to the aforementioned digital voice data.

[Translation done.]

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